

TROPICAL RAINFALL MEASURING MISSION

June 19, 2000 - June 25, 2000

DOY 171 - 177

Day of Mission 934 - 940

TRMM MISSION OPERATIONS

- TRMM is flying in the +X Forward direction as of 00-155, at 08:26:19z.
- Yaw maneuver #43 is scheduled for July 5th (00-187).
- Delta-V maneuver #205 is scheduled for June 28th (00-180), using the LBS thrusters.
- The Beta angle range for 00-178 through 00-184 is +41.91° to +11.01°.
- The next Monthly Status Review is scheduled for July 5th (00-187).
- The next CCB meeting is scheduled for July 13th (00-195).

TRMM SUBSYSTEM OPERATIONS

Attitude Control System (ACS)

00-172 (June 20th)

Delta-V maneuver #203 was successfully conducted at 14:41:17z and 15:27:01z for durations of 37.0 and 24.750 seconds respectively, using the LBS thrusters. The off-modulation of the -Yaw (#1) and +Pitch thrusters (#2) for burn 1 was 0% and 27.4% (100% and 72.6% on time). The off-modulation of the +Pitch thruster (#2) for burn 2 was 28.3% (71.7% on time). The remaining fuel is 565.207 kg, and the final apogee and perigee height is 354.79 km x 347.53 km.

00-176 (June 24th)

Delta-V maneuver #204 was successfully conducted at 14:48:07z and 15:33:53z for durations of 38.0 and 22.750 seconds respectively, using the LBS thrusters. The off-modulation of the -Yaw (#1) and +Pitch thrusters (#2) for burn 1 was 1.3% and 26.6% (98.7% and 73.4% on time). The off-modulation of the +Pitch thruster (#2) for burn 2 was 24.7% (75.3% on time). The remaining fuel is 563.756 kg, and the final apogee and perigee height is 354.67 km x 347.44 km.

The ESA experienced Moon interference in quadrants 2 and 4 on 00-171 through 00-172 and Sun interference in quadrants 1 and 3 on 00-174 through 00-177. ACS performed nominally during the transitions between 3 and 4 head control.

Flight Data System (FDS)/Command & Data Handling (C&DH)

The current frequency standard offset remains x'796' with a current drift rate of -1.71 μ s/hr. The UTCF remains 31535996.843867 seconds with a current drift value of -594 μ s.

EDAC multi-bit errors were detected on 00-175 at 22:18:35z and on 00-176 at 22:41:13z.

Q-channel telemetry restarts occurred on 00-175 at 22:07:51z and on 00-176 at 04:05:40z.

The TC Flywheel dwell counter incremented to 295 ('127' hex) on 00-171 at 10:02:07z.

An Invalid Stream ID from XS message occurred on 00-171 at 04:20:54z due to VIRS.

Reaction Control Subsystem (RCS)

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

Power Subsystem

The Power subsystem operated nominally during this period. With the high beta angle this cycle, the Autospru function which performs a step-to-trickle transition when both batteries reach 100% State of Charge was temporarily re-enabled on 00-172 at 15:22z once the actual C/D ratio reached 1.08 to avoid overcharging and therefore overheating the batteries. The Autospru function will be disabled again once the solar beta angle decreases sufficiently (longer eclipse and shorter orbital daylight periods) to allow the additional charging of the batteries again via full taper along the V-T curve.

Electrical Subsystem

The Electrical subsystem operated nominally during this period.

Thermal Subsystem

The Thermal subsystem operated nominally during this period.

Deployables Subsystem

The Deployables subsystem performed nominally during this period.

RF/Communications Subsystem

The RF/Communications subsystem performed nominally during this period.

SPACECRAFT INSTRUMENTS

CERES

The CERES instrument remains in Safe Mode following the DAP microprocessor failure which was reported last week (AR #82).

00-175 (June 23rd)

In order to better characterize the DAP processor failure, two patches were loaded on 00-175 at 13:18z to monitor ADC functionality (CR #385). The DAP processor was subsequently reset and the default parameters were reconfigured to their nominal states at 14:56z (CR #386) in an

attempt to restore the DAP. The ICP processor was reset at 17:10z (CR #387) after the DAP reset was unsuccessful. Following the initial DAP reset, there have been occasional fluctuations in DAP telemetry which lends hope that the microprocessor may be eventually revived and restored to functional status.

LIS

LIS performed nominally during this time period. A standard LIS reset command request was performed on 00/173 to reduce the usual accumulation of packet sequence errors.

PR

PR performed nominally during this time period. A PR Low Noise Amplifier (LNA) Analysis command request was performed on 00/171 at 08:35:00z. PR External Calibrations were performed on 00/172 at 13:37:11z and 15:13:37z and on 00/173 at 14:01:23z.

The list of Internal Calibration times over Australia in which PR was not radiating is below:

2000/171:00:10:30 - 00:15:16z
2000/171:06:41:01 - 06:43:14z
2000/172:07:03:25 - 07:05:32z
2000/172:23:21:45 - 23:23:42z
2000/173:05:52:02 - 05:54:15z
2000/174:06:14:53 - 06:16:59z
2000/175:05:03:22 - 05:05:34z
2000/175:21:21:57 - 21:25:56z
2000/176:05:25:52 - 05:27:58z
2000/177:04:14:26 - 04:16:36z
2000/177:20:32:27 - 20:37:32z

TMI

TMI performed nominally during this time period.

VIRS

VIRS performed nominally during this time period.

GROUND SYSTEM

The problems with PTP-1 which were reported last week (ER #180) were attributed to intense lightning activity at the time the PTP-1 alarm went off. There was no apparent hardware damage to PTP-1 and operations will resume with PTP-1 next week after several days of parallel operational testing with the backup PTP-3.

Event Reports

No new Event Reports were generated during this period.

Generic Late Acquisition Reports (for TTRs 19639)

#61: 00-174:07:56:00z 171/SSA1 Event: 1min 18 sec Generic Late Acquisition.

New Anomaly Reports

No new Anomaly Reports were generated during this period.

Recurring Open Anomaly Reports

No Open Anomalies were observed during this period.

Prepared by:
Andy Calloway
TRMM Systems Engineer

Approved by:
Lou Kurzmilller
FOT Manager